## IN THE DRAWINGS

Figure 3 has been amended to correct a typographical error in block 340. The language "the control codes" was added after "based on". This change is consistent with the description provided in the specification on page 16, lines 16-17. No new matter is introduced as a result of this amendment.

## REMARKS

Claims 1-21 are pending in the present application.

In the Office Action, the Examiner rejected claims 1, 12, and 21 under 35 U.S.C. 112, . first paragraph. The Examiner's rejections are respectfully traversed.

The Examiner maintains the allegation that claims 1, 12, and 21 are not enabled because the specification allegedly does not reasonably provide enablement for authentication via the physical layer. Applicants respectfully disagree and submit that embodiments of techniques for authentication via the physical layer are described in the specification. See Patent Application, page 14, line 15 – page 15, line 10. The Office Action indicates that the claim includes the language "adapted to" receive the control codes and signal a security violation. In the context of the specification, the "adapted to" is comparable to "operable to" or "configured to" or "capable of". It simply denotes that the physical layer hardware has the capability to perform the functions described. Applicants clearly describe the operations that would be necessary for the physical layer to perform by way of multiple examples. As is common in many patent applications related to electronic components, the operation of the hardware is described in functional terms as opposed to specific structural details. Often, such hardware is implemented using a general processing device executing software or firmware instructions to perform the described functions. Those of ordinary skill in the art, given the description provided, are capable of implanting the described physical layer hardware given the described functionality. Applicants submit that the present application, particularly the sections of the specification cited above, enables persons of ordinary skill in the art having benefit of the present disclosure to make and use the claimed invention.

For at least the aforementioned reasons, Applicants respectfully request that the Examiner's rejections of claims 1, 12, and 21 under 35 U.S.C. 112, first paragraph, be withdrawn.

In the Office Action, the Examiner rejected claims 1, 12, and 21 under 35 U.S.C. 112, second paragraph as being indefinite. The Examiner's rejections are respectfully traversed.

The Examiner maintains the allegation that the term "inconsistent" is broad and indefinite. Applicants respectfully disagree and submit that a person of ordinary skill in the art having benefit of the present disclosure should appreciate that the control codes may be inconsistent with the authentication code in a variety of ways, such as one or more control codes being different than a portion of the authentication code, one or more hashes of one or more control codes being different than a portion of the authentication code, and the like. The Merriam Webster On-line Dictionary defines inconsistent as:

> inconsistent: lacking consistency: as a : not compatible with another fact or claim <*inconsistent* statements> b : containing incompatible elements <an *inconsistent* argument> c : incoherent or illogical in thought or actions : CHANGEABLE d : not satisfiable by the same set of values for the unknowns <*inconsistent* equations> <*inconsistent* inequalities>

The authentication code may be inconsistent with the control codes under each of these definitions. The authentication code is generated based on the control codes. As an illustrative example, a check-sum like quantity may be determined for the authentication code. When the control codes are transferred to the PHY hardware, the same procedure may be used to generate an expected value for the authentication code. If the expected value does not match the provided authentication code, clearly, the control codes are inconsistent with respect to the authentication code. With respect to the definition of "inconsistent," the control codes and authentication code contain "incompatible elements" or are "not satisfiable by the same set of values." The meaning

of inconsistent when describing the relationship between the control codes and the authentication code is not clearly not indefinite. This example illustrates only one relationship between the control codes and the authentication codes that can be used to determine consistency. The claims are not limited to this particular example, and Applicants are not required to specify in the claim each possible technique for determining consistency between the control codes and the authentication code. Accordingly, Applicants respectfully submit that the claims reasonably define the scope of the claims so that the public is informed of the boundaries of what constitutes infringement of the patent. See MPEP §2173. Moreover, Applicants note that the breadth of claim is not to be equated with indefiniteness. See MPEP §2173.04

For at least the aforementioned reasons, Applicants respectfully submit that claims 1-21 are definite and request that the Examiner's rejections of these claims under 35 USC 112, second paragraph, be withdrawn.

The Office Action asserts that Applicants' previous response did not address the examiners 35 U.S.C. § 103(a) rejection. The response did include such arguments, which are repeated here. The examiner was contacted and indicated that the arguments were inadvertently omitted when the response was printed for his review. It was agreed that the finality of the present Office Action would be withdrawn and the arguments would be considered.

In the Office Action, claims 1, 7-12, and 18-21 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Roeck (U.S. Patent No. 6,594,305) in view of Nay (U.S. Patent No. 5,237,567). Claims 2-3 and 13-14 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Roeck in view of Nay and further in view of Spelman (U.S. Patent No. 5,680,458). Claims 4 and 15 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Roeck in view of Nay and further in view of Mergard (U.S. Patent No.

5,881,248). Claims 6 and 17 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Roeck in view of Nay and further in view of Whitmire (U.S. Patent No. 6,115,817). The Examiner's rejections are respectfully traversed.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. That is, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Third, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. A recent Federal Circuit case emphasizes that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory

statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35.

Roeck describes a ping protocol for determining whether a link in a network system utilizing cable modems is operational regardless of a modem's registration status. See Roeck, col. 1, ll. 15-20. However, as admitted by the Examiner, Roeck does not describe or suggest the use of authentication codes or determining security violations. The Examiner and therefore alleges that Nay describes generating an authentication code. Applicants respectfully disagree. Nay describes using parity bits, check bits, and/or checksums for error detection and/or correction. See Nay, col. 37, ll. 35-62. However, Applicants respectfully submit that Nay is completely silent with regard to any type of authentication technique or determining whether or not a security violation has occurred. Accordingly, Applicants respectfully submit that the cited references fail to teach or suggest all limitations of the claimed invention.

Applicants submit that the cited references also fail to provide any suggestion or motivation for modifying the prior art of record to arrive at the claimed invention. As discussed above and as admitted by the Examiner, Roeck is completely silent with regard to the use of authentication codes or determining security violations. Moreover, as discussed above, Roeck is concerned with determining whether a link in a network system utilizing cable modems is operational regardless of a modem's registration status. Thus, Roeck is unconcerned with performing any authentication of the cable modem and consequently provides no suggestion or motivation to modify the prior art to incorporate any authentication techniques in the manner suggested by the Examiner. Nay is concerned with detecting and/or correcting errors that occur during transmission of data over a bus. Thus, Nay is unconcerned with authentication and

consequently provides no suggestion or motivation to modify the prior art to incorporate any authentication techniques in the manner suggested by the Examiner.

Spelman describes techniques for sending authentication codes, Mergard describes using unused portions of a bus, and Whitmire describes cryptography techniques. However, none of these references remedy the fundamental deficiencies of Rocek and Nay.

For at least the aforementioned reasons, Applicants respectfully submit that the Examiner has failed to make a *prima facie* case that the present invention is obvious over the prior art of record. Applicants request that the Examiner's rejections of claims 1-4, 6-15, and 17-21 under 35 U.S.C. 103(a) be withdrawn.

In the Office Action, the Examiner indicated that claims 5 and 16 include allowable subject matter that objected to these claims as being dependent upon a rejected base claim. Pursuant to the above arguments, Applicants respectfully submit that claims 5 and 16 are in condition for allowance. Applicants request that the Examiner's objections to these claims to be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4070 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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